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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/609,250	06/30/2000	Tsuguhiro Korenaga	33216M050	2081

7590 03/26/2002

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EXAMINER
VARGOT, MATHIEU D

ART UNIT	PAPER NUMBER
1732	8

DATE MAILED: 03/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary

Application No.	Applicant(s)
09/609,250	KORENAGA et al.
Examiner	**Group Art Unit**
M. VARGOT	1732

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-11 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-11 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5 + 6 ☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has disclosed that T_1 constitutes a temperature "for pressing the mold against the base material" (page 7, line 2) and at page 14, lines 2-3, the molding temperature. Also, T_2 is disclosed as the temperature "for separating the mold from the base material" at page 7, line 3 and the mold releasing temperature at page 14, line 3. While applicant has disclosed that the two molds are heated and therefore the base material itself is also heated, applicant has failed to describe exactly what is meant by "temperature for pressing" and "temperature for releasing". It is not clear from the specification if the temperatures referred to are mold or substrate temperatures.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, is the temperature T_1 (ie, for pressing the mold against the base material) the temperature of the top mold, bottom mold or the substrate? Ie, it is unclear exactly what constitutes this temperature and whether such is the "molding temperature" set forth in the instant

specification. Also, what exactly constitutes the temperature for separating the mold from the base material--does applicant mean the temperature of the substrate or the temperature of one of the molds? Claim 9 is indefinite in calling for an apparatus "wherein a micro-shape is transcribed in accordance with...claim 1 or 2" when in fact the method does not further define the apparatus. Applicant is requested to make claim 9 an independent claim.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Greschner et al (see passage bridging columns 2 and 3 for the dimensions; col. 4, lines 36-45 for the temperatures; col. 5, lines 30-32 for the thermal expansion coefficients).

The applied reference discloses the instant process for a micro-shape transcription using a mold stamper with a thermal expansion coefficient very close to that of the base material (silicon) being molded so that the instant relations (1) and (2) are satisfied. This is so because the molding temperature (T_1) is around 600 deg C, the releasing temperature (T_2) is 380-450 deg C and the absolute value of the difference of the thermal expansion coefficients of the mold stamper and base is 1 exp (-6). Employing these numbers and figuring that d = 2 mm, the product of relation (2) is 3 exp (-4), which is less than or equal to 4 exp (-2). Any value of d that would correspond

to any conventional optical disk would yield a value for relation (2) which is less than or equal to 4 exp (-2), and hence claim 1 is anticipated.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greschner et al.

Greschner et al discloses the basic claimed method and apparatus lacking essentially the exact depth of the pattern, the use of thermoplastic resins as the base material, the employment of vacuum chucks to keep the base in place and making a waveguide by the pressing process. Note that Greschner et al (col. 3, line 1) teaches that the depth of the pattern would be 600 nm, or .6 um, such seen to have been an obvious depth over the instantly claimed 1 um or more. As noted in the background portion of the instant specification (ie, The Related Art section), it is well known to make glass waveguides and transcribe micro-patterns by pressing resin substrates. It is submitted that these aspects would have been well known to those of ordinary skill in this art and obvious modifications to the process of the applied reference dependent on the exact optical article desired. Greschner et al shows air passages (39 in Fig. 3) which are taught as connected to a source of compressed air to release the pressed base material from the bottom mold. However, attachment by vacuum is nothing but conventional in this art and one of ordinary skill would have

recognized that passages 39 would have equally have been used in a vacuum pinning operation. Ie, it would have been obvious to have modified bottom mold 38 as a vacuum chuck as called for in instant claim 9 to facilitate its accurate placement before pressing.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Vargot whose telephone number is (703) 308-2621.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

M. Vargot

March 21, 2002

M. Vargot

MATHIEU D. VARGOT
PRIMARY EXAMINER
GROUP 1300

3/21/02